

CLAIMS:

1. Ophthalmic apparatus for the testing of eye deviation of a patient's eyes, said apparatus comprising:

a) a variable lens having an optical axis and refractive characteristics which cause alterations in direction of rays of light passing through the lens along predetermined incident paths;

b) control means for controlling the refractive characteristics of said variable lens, during the measurement of a patient's eye deviation; and

c) output means for outputting a data value indicative of a measured eye deviation for the patient;

10 characterized in that said variable lens comprises a meniscus and a plurality of electrodes spaced about said optical axis, wherein said control means is adapted to achieve different meniscus shapes by a variation of a pattern of voltages applied across said plurality of electrodes, wherein said meniscus shapes are lens shapes having variable refractive characteristics and including at least approximately spherical or aspherical and at least 15 approximately anamorphic lens shapes.

2. Apparatus according to claim 1, wherein the meniscus separates a layer of a first fluid and a layer of a different, second fluid.

20 3. Apparatus according to claim 1 or 2 wherein the refractive characteristics of the lens shapes are variable by variation of said pattern of voltages applied across the electrodes.

25 4. Apparatus according to any preceding claim, wherein said plurality of electrodes comprise one or more pairs of electrodes, and the members of each said pair are located on opposite sides of said optical axis.

5. Apparatus according to any preceding claim, comprising means for rotating the variable lens about the optical axis.

6. Apparatus according to any preceding claim, wherein said control means is adapted to rotate the pattern of applied electrode voltages about the optical axis.

5 7. Apparatus according to any preceding claim, wherein the plurality of electrodes includes a substantially cylindrical electrode configuration

10 8. Apparatus according to any preceding claim, wherein said output means is arranged to output a data value to be included in at least part of an ophthalmic prescription to be produced for the patient.

9. Apparatus according to any preceding claim, further comprising a testing object comprising ophthalmic indicia for viewing by a patient during the testing of eye deviation.

15 10. Apparatus according to any preceding claim, wherein said at least approximately anamorphic lens shapes include at least approximately cylindrical and at least approximately spherocylindrical lens shapes.

20 11. Apparatus according to any preceding claim, wherein said control means is adapted to provide, in one refractive state, a lens shape having a focal power of a negative value.

25 12. Apparatus according to any preceding claim, wherein said control means is adapted to provide, in one refractive state, a lens shape having a focal power of a positive value.

30 13. Apparatus according to any preceding claim, further comprising head mounting means for positioning the variable lens in a desired configuration relative to the patient's eyes.

14. Apparatus according to any preceding claim, further comprising one or more non-variable solid lenses which are positionable so as to share the optical axis of said variable lens.

15. A method of testing the eye deviation of a patient's eyes, said method comprising:

5 a) providing a variable lens having an optical axis and refractive characteristics which cause alterations in direction of rays of light passing through the lens along predetermined incident paths;

b) controlling the refractive characteristics of the variable lens during the measurement of a patient's eye deviation, and

10 c) outputting a data value indicative of a measured eye deviation for the patient,

characterized in that said provided variable lens comprises a meniscus and a plurality of electrodes spaced about said optical axis, wherein said controlling in step b) involves varying a pattern of voltages applied across said plurality of electrodes to achieve different meniscus shapes, wherein said meniscus shapes are lens shapes having variable refractive characteristics and including at least approximately spherical or aspherical and at 15 least approximately anamorphic lens shapes.

16. A method according to claim 15, wherein during the measurement the patient views a testing object comprising ophthalmic indicia through the variable lens.

20 17. A method according to claim 15 or 16, wherein the data value indicative of a measured eye deviation for the patient is recorded when the patient can view the ophthalmic indicia at a level of ability at least matching a predetermined threshold of viewing ability.

25 18. A method according to any of claims 15 to 17, comprising generating ophthalmic prescription data including details of the patient's eye deviation as indicated by said output data value.